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PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Sophie et al.
Appl. No. : 09/975,466
Filed : October 9, 2001
For : IN SITU REDUCTION OF
COPPER OXIDE PRIOR TO
SILICON CARBIDE
DEPOSITION
Examiner : Kielin
Group Art Unit : 2813

CERTIFICATE OF MAILING

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

October 6, 2004

(Date)

Andrew N. Merickel, Reg. No. 53,317

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The present paper is submitted in response to the Final Office Action mailed on July 20, 2004. Applicants thank the Examiner for the productive discussions and his willingness to enter the following amendments after final.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Summary of Interview begins on page 5 of this paper.

Remarks/Arguments begin on page 6 of this paper.

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated below.

1. (Currently Amended) A process for producing an integrated circuit comprising reducing copper oxide on a substrate to leave copper from the copper oxide on the substrate while removing oxygen from the copper oxide by exposure to one or more vapor phase organic reducing agents prior to deposition of a layer comprising silicon carbide, wherein the vapor phase organic reducing agent is not plasma activated.

2. (Original) The process of Claim 1, wherein the layer further comprises oxygen.

3. (Original) The process of Claim 1, wherein the layer serves as a hard mask.

4. (Original) The process of Claim 1, wherein the organic reducing agent comprises at least one functional group selected from the group consisting of alcohol (-OH), aldehyde (-CHO), and carboxylic acid (-COOH).

5. (Previously Presented)) The process of Claim 4, wherein the organic reducing agent is selected from the group consisting of primary alcohols, secondary alcohols, tertiary alcohols, polyhydroxyalcohols, cyclic alcohols, and halogenated alcohols.

6. (Previously Presented) A process for producing an integrated circuit comprising reducing copper oxide on a substrate by exposure to one or more vapor phase organic reducing agents prior to deposition of a layer comprising silicon carbide, wherein the vapor phase organic reducing agent is not plasma activated, and wherein said organic reducing agent is selected from the group consisting of:

compounds having the general formula $R^3\text{-CHO}$, wherein R^3 is hydrogen or a linear or branched $C_1\text{-C}_{20}$ alkyl or alkenyl group;

compounds having the general formula $\text{OHC-R}^4\text{-CHO}$, wherein R^4 is a linear or branched $C_1\text{-C}_{20}$ saturated or unsaturated hydrocarbon;

a compound of the formula OHC-CHO ;

halogenated aldehydes; and

other derivatives of aldehydes.

7. (Previously Presented) A process for producing an integrated circuit comprising reducing copper oxide on a substrate by exposure to one or more vapor phase organic reducing agents prior to deposition of a layer comprising silicon carbide, wherein the vapor phase organic

Okay to enter, CIL, 10/22/2004